Ser. No. 09/759,766
Attorney Docket No. 2359-00

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Mohsen Shahinpoor | Group: 3738

Serial No.: 09/759,766 | Examiner: Javier G. Blanco

Filed: January 12, 2001 | Atty. Docket No.: 2359-00

For: ACCOMMODATING ZONULAR MINI-BRIDGE IMPLANTS

AFFIDAVIT OF DR. MOHSEN SHAHINPOOR

1. My name is Mohsen Shahinpoor Ph.D. and I am an inventor in the above-referenced patent application.

2. Attached is a copy of my short curriculum vitae.

3. As director of the Artificial Muscle Research Institute, the patents issued to me by the United States Patent and Trademark Office, my education and experience, and the several lectures and publications that I have authored, I consider myself an expert in the art.

4. The invention as claimed, is a unique method of implanting "bridges" onto the zonular fibers of the eye for creating transmission bridges to augment the contraction force of the ciliary muscles.

5. I have reviewed the office action regarding the pending patent application dated, May 17, 2005.

6. The operation of the Ganem, et al., device and the presently claimed inventions are totally different. In the office action, the Examiner states: "Referring to Figures 1, 2, and 4, Ganem, et al., discloses an apparatus for augmenting near vision accommodation by contraction of the ciliary muscles of the eye by reinforcement (see page 1, lines 15-18 and line 22-24)... Ganem, et al., on the cited page and line number it states: "It has been demonstrated that the ageing of the eye tended to produce an increase in the outer diameter of the crystalline lens. As a result, the zonules become 'too long' and are 'relaxed' and the impulses applied to the fibrils of the zonules no longer enable the latter to act on the crystalline lens to provoke accommodation." "An object of the present invention is to provide a device adapted to be implanted in the eye, which makes it possible to increase the optical power of the crystalline lens, by provoking a reduction of the radius of the curvature of its posterior face." Nowhere in the Ganem, et al., cited passage or in the entire specification is contraction of ciliary muscles ever mentioned. The only place Ganem, et al., (CA 2 358 485 A1) talks about contraction is page 1 line 11-12 in which he writes: controlled contraction of the zonules 18 provoke modification of the radii of curvature of the crystalline lens 14... (Emphasis added). None of the words in claim 1 are depicted in the lines referred to by the Examiner. In the office action, the Examiner further states: "of at least one set of natural zonular fibers, the apparatus comprising at least one bridge (ring or device 20) configured to be affixed (see Figure 2)..." The Examiner appears to interpret the term bridge, which has never been mentioned in Ganem, et al., as ring or device 20. This interpretation is improper because they are totally different devices and operate in a totally different manner as specifically described in the specification in Ganem, et al., and in the present invention. The term "bridge" in the specification is defined as "direct pressure transmission bridges between the ciliary muscles and the lens capsule so that

upon contraction of the ciliary muscle, the hoop pressure is directly transmitted to the anterior region of the lens capsule and thus forces the lens to become more spherical, and accommodate for near vision". See page18, line 32. The different configurations of the "bridges" are shown and described in Figs. 5a, 5b, 6b, 7b, 8b, 9b, 10b, and 11b. None of these configurations are of a ring or truncated cone. Thus, the Examiner's conclusion that the ring or device of Ganem, et al., is a "bridge" as set forth in the claims, is erroneous.

7. Further the examiner states: "in and around the at least one set of natural zonular fibers, wherein said at least one bridge transmit an augmented contraction force for constricting the natural crystalline lens..." Again, there are no such words or phrases in Ganem, et al., nor is the feature even implied in Ganem, et al. Further, Ganem, et al., claims a truncated cone (page 3, lines 17-18, and claims 1 and 13) to his ring or device. This is not a bridge, as is claimed and specifically described, between the ciliary muscles and the lens capsule. Further, Ganem, et al., does not describe or claim contraction or constricting of the lens capsule to achieve accommodation. In fact Ganem, et al., on page 2 line 27 and page 3 lines 23-28 and page 4 lines 1-8 and according to Figure 3, the truncated cone flexes the zonules backwardly so that the point of attachment of the zonules to the lens capsule moves backward by an amount d (Fig 3) and outward by an amount e (Fig 3) to point C. Thus, Ganem, et al's., device actually stretches the capsule outward to increase the diameter of the lens capsule. The present invention does the opposite because it actually reduces the diameter of the lens capsule when the ciliary muscles are contracted and a constricting force is transmitted by the bridges to the lens capsule.

8. I strongly disagree with the conclusions reached by the Examiner and firmly believe that the Examiner's arguments are in error.

9. I am familiar with several publications in similar art areas and the Examiner's conclusions are diametrically opposed to these well regarded authors. I am also familiar with several renowned experts in the art, and they would also vigorously disagree with the Examiner's conclusions and contentions.

MOHSEN SHAHINPOOR, Ph.D., PE

STATE OF NEW MEXICO)
)
COUNTY OF BERNALILLO)

SUBSCRIBED AND SWORN to before me this 27th day of July, 2005, by Mohsen Shahinpoor, Ph.D., PE.

NOTARY PUBLIC

My Commission Expires:
August 15, 2007